BZT52C2V4LP - BZT52C39LP

SURFACE MOUNT ZENER DIODE

Features

- Ultra-Small Leadless Surface Mount Package
- Ideally Suited for Automated Assembly Processes
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please contact us or your local Diodes representative. https://www.diodes.com/quality/product-definitions/**

Mechanical Data

- Package: X1-DFN1006-2
- Package Material: Molded Plastic, "Green" Molding Compound; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Marking Information
- Terminals: Finish — NiPdAu over Copper Leadframe; Solderable per MIL-STD-202, Method 208 e4
- Weight: 0.001 grams (Approximate)

Bottom View

Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
(Type Number)-7*	X1-DFN1006-2	3,000	Tape & Reel
(Type Number)-7B**	X1-DFN1006-2	10,000	Tape & Reel

*Add "-7" to the appropriate type number in Electrical Characteristics Table. Example: 6.2V Zener = BZT52C6V2LP-7.
**Add "-7B" to the appropriate type number in Electrical Characteristics Table. Example: 6.2V Zener = BZT52C6V2LP-7B.

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.

Marking Information

Top View
Bar Denotes
Cathode Side

xx = Product Type Marking Code
(See Electrical Characteristics Table)

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Forward Voltage (Note 5)	@ I_F = 10mA	V_F	0.9	V

Thermal Characteristics

Characteristic		Symbol	Value	Unit
Power Dissipation	(Note 6) T_A = +25°C	P_D	250	mW
Thermal Resistance, Junction to Ambient Air	(Note 6) T_A = +25°C	$R_{\theta JA}$	500	°C/W
Operating and Storage Temperature Range		T_J, T_{STG}	-65 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Type Number	Marking Code	Zener Voltage Range (Note 5)				Maximum Zener Impedance f = 1kHz			Maximum Reverse Current (Note 5)		Temperature Coefficient @ I_{ZTC} mV/°C		Test Current I_{ZTC}
		V_Z @ I_{ZT}			I_{ZT}	Z_{ZT} @ I_{ZT}	Z_{ZK} @ I_{ZK}	I_{ZK}	I_R	@ V_R			
		Nom (V)	Min (V)	Max (V)	mA	Ω		mA	µA	V	Min	Max	mA
BZT52C2V4LP	WX	2.4	2.20	2.60	5	100	600	1.0	50	1.0	-3.5	0	5
BZT52C2V7LP	W1	2.7	2.5	2.9	5	100	600	1.0	20	1.0	-3.5	0	5
BZT52C3V0LP	W2	3.0	2.8	3.2	5	95	600	1.0	10	1.0	-3.5	0	5
BZT52C3V3LP	W3	3.3	3.1	3.5	5	95	600	1.0	5	1.0	-3.5	0	5
BZT52C3V6LP	W4	3.6	3.4	3.8	5	90	600	1.0	5	1.0	-3.5	0	5
BZT52C3V9LP	W5	3.9	3.7	4.1	5	90	600	1.0	3	1.0	-3.5	0	5
BZT52C4V3LP	W6	4.3	4.0	4.6	5	90	600	1.0	3	1.0	-3.5	0	5
BZT52C4V7LP	W7	4.7	4.4	5.0	5	80	500	1.0	3	2.0	-3.5	0.2	5
BZT52C5V1LP	9Y	5.1	4.8	5.4	5	60	480	1.0	2.0	2.0	-2.7	1.2	5
BZT52C5V6LP	9A	5.6	5.2	6.0	5	40	400	1.0	1.0	2.0	-2	2.5	5
BZT52C6V2LP	9B	6.2	5.8	6.6	5	10	150	1.0	3.0	4.0	0.4	3.7	5
BZT52C6V8LP (Note 7)	9C	6.8	6.4	7.2	5	15	80	1.0	2.0	4.0	1.2	4.5	5
BZT52C7V5LP	9D	7.5	7.0	7.9	5	15	80	1.0	1.0	5.0	2.5	5.3	5
BZT52C8V2LP	9E	8.2	7.7	8.7	5	15	80	1.0	0.7	5.0	3.2	6.2	5
BZT52C9V1LP	9F	9.1	8.5	9.6	5	15	100	1.0	0.5	6.0	3.8	7.0	5
BZT52C10LP	9G	10	9.4	10.6	5	20	150	1.0	0.2	7.0	4.5	8.0	5
BZT52C11LP	9H	11	10.4	11.6	5	20	150	1.0	0.1	8.0	5.4	9.0	5
BZT52C12LP	9J	12	11.4	12.7	5	25	150	1.0	0.1	8.0	6.0	10.0	5
BZT52C13LP	9K	13	12.4	14.1	5	30	170	1.0	0.1	8.0	7.0	11.0	5
BZT52C15LP	9L	15	13.8	15.6	5	30	200	1.0	0.1	10.5	9.2	13.0	5
BZT52C16LP	9M	16	15.3	17.1	5	40	200	1.0	0.1	11.2	10.4	14.0	5
BZT52C18LP	9N	18	16.8	19.1	5	45	225	1.0	0.1	12.6	12.4	16.0	5
BZT52C20LP	9P	20	18.8	21.2	5	55	225	1.0	0.1	14.0	14.4	-	5
BZT52C22LP	9R	22	20.8	23.3	5	55	250	1.0	0.1	15.4	16.4	-	5
BZT52C24LP	9S	24	22.8	25.6	5	70	250	1.0	0.1	16.8	18.4	-	5
BZT52C36LP	9W	36	34.0	38.0	2	90	350	0.5	0.1	25.2	36.5	-	5
BZT52C39LP	9X	39	37.0	41.0	2	130	350	0.5	0.1	27.3	36.8	-	5

Notes:
5. Short duration pulse test used to minimize self-heating effect.
6. Device mounted on FR-4 PCB with minimum recommended pad layout, as shown in Diodes Incorporated's Suggested Pad Layout document, which can be found on our website at http://www.diodes.com.
7. Device can withstand a repetitive, 1A pulse with tp = 300µs and T = 3s (forward or reverse direction).

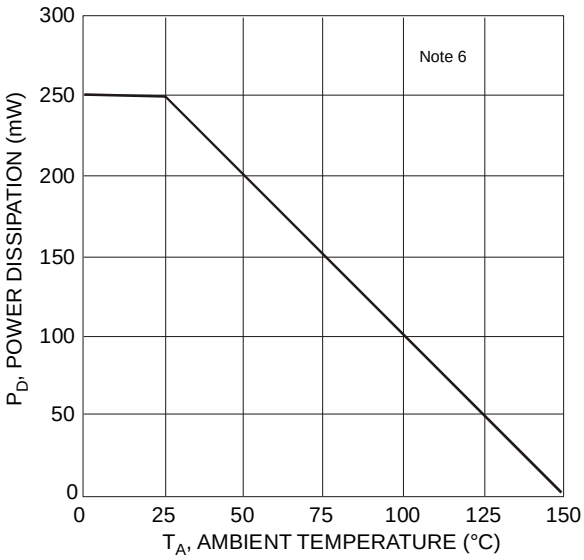


Fig. 1 Power Derating Curve

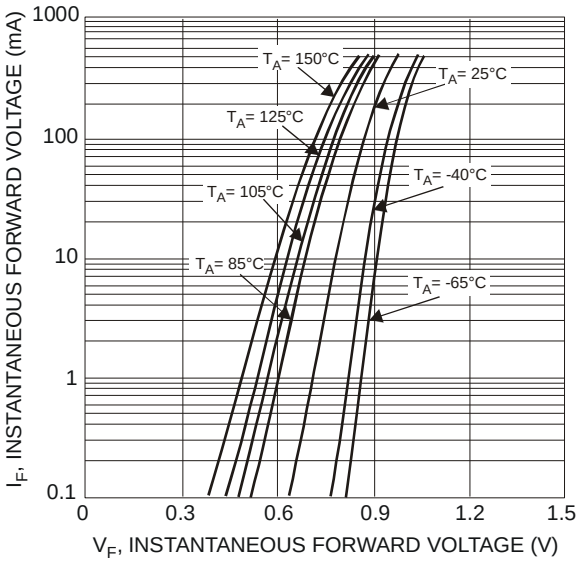


Fig. 2 Typical Forward Characteristics

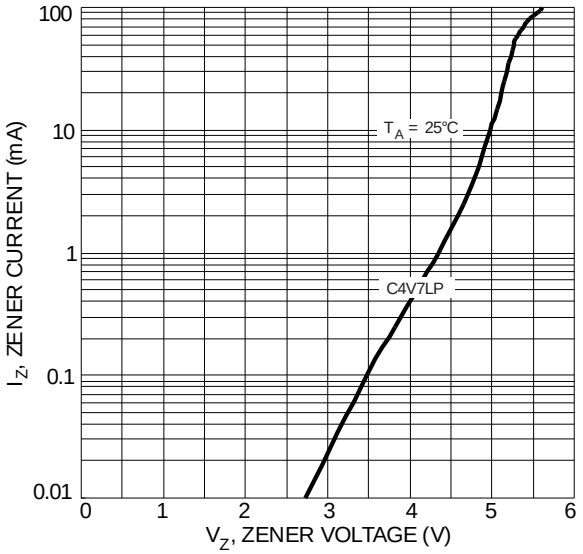


Fig. 3 Typical Reverse Characteristics

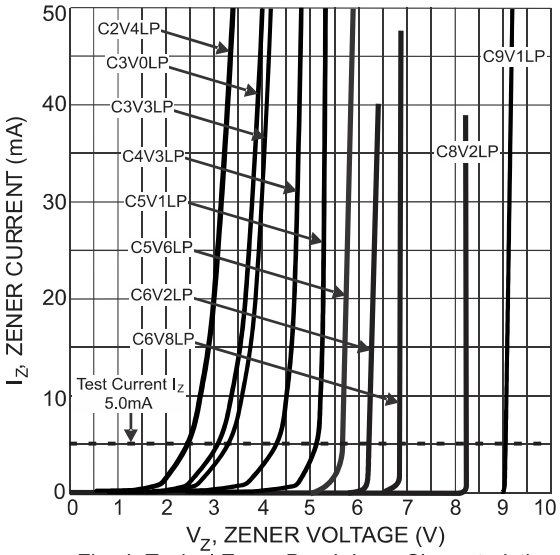


Fig. 4 Typical Zener Breakdown Characteristics

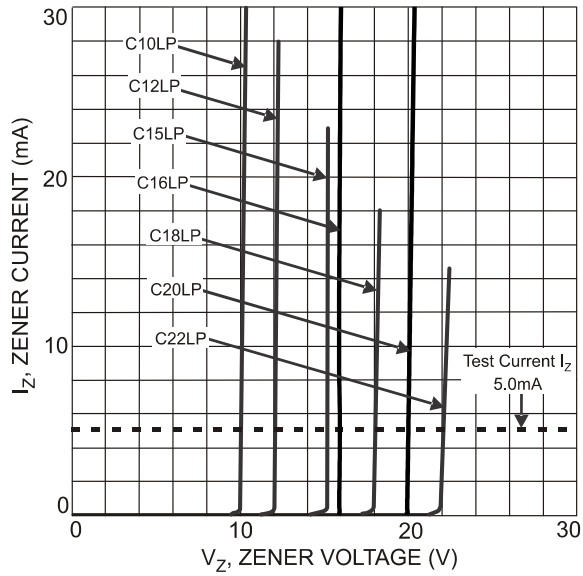


Fig. 5 Typical Zener Breakdown Characteristics

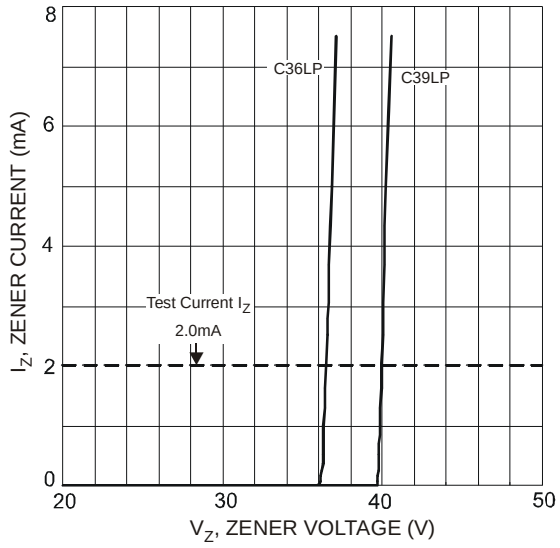
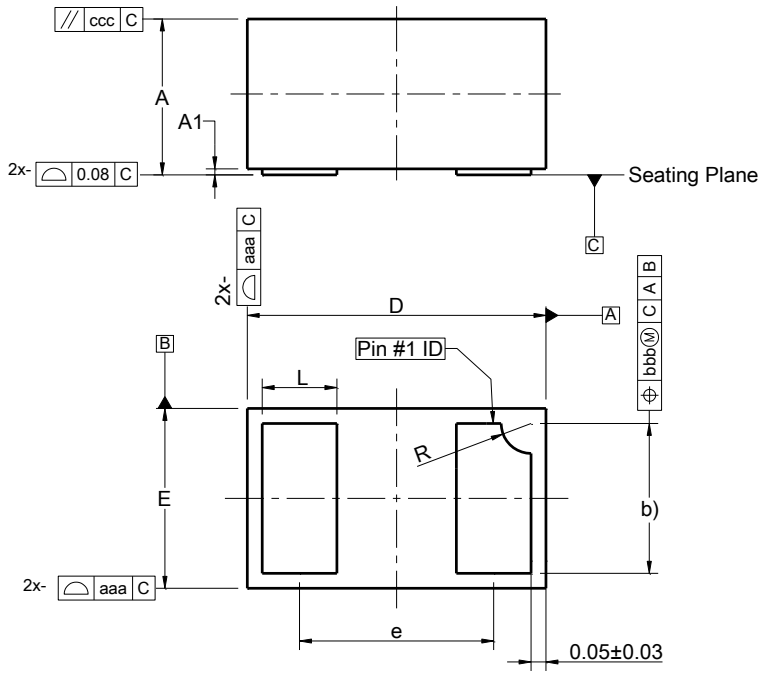


Fig. 6 Typical Zener Breakdown Characteristics

Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

X1-DFN1006-2

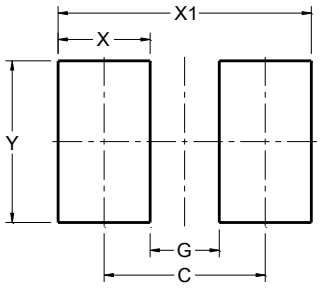


X1-DFN1006-2			
Dim	**Min**	**Max**	**Typ**
A	0.47	0.53	0.50
A1	0.00	0.05	0.03
b	0.45	0.55	0.50
D	0.95	1.075	1.00
E	0.55	0.675	0.60
e	--	--	0.65
L	0.20	0.30	0.25
R	0.05	0.15	0.10
aaa	0.15		
bbb	0.05		
ccc	0.05		
All Dimensions in mm			

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

X1-DFN1006-2



Dimensions	Value (in mm)
C	0.70
G	0.30
X	0.40
X1	1.10
Y	0.70

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